

Comparisons of Job Characteristics

Focus Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)

Associated Occupation: Biomedical Engineers (17-2031)

Compare Knowledge

Compare Skills

Compare Abilities

Compare Detailed Work Activities

Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 63

Focus Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)
Associated Occupation: Biomedical Engineers (17-2031)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Biology	3.7	21.2	6.2	<<	Extensive education and/or training may be required
Engineering and Technology	5.7	21.0	18.9	<	Expanded education and/or training may be required
Mathematics	9.2	20.2	15.1	<<	Extensive education and/or training may be required
Physics	4.3	17.6	14.1	<<	Extensive education and/or training may be required
Design	5.2	16.6	15.9	0	Current knowledge level may be sufficient
Computers and Electronics	8.4	16.5	10.8	<<	Extensive education and/or training may be required
Chemistry	4.8	16.3	13.0	<<	Extensive education and/or training may be required
Medicine and Dentistry	3.7	14.4	3.9	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 84

Focus Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)
Associated Occupation: Biomedical Engineers (17-2031)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	17.1	12.4	<<	Extensive development of skills in this area may be required

Complex Problem Solving	9.1	15.1	11.8	<<	Extensive development of skills in this area may be required
Judgment and Decision Making	9.4	15.1	12.0	<<	Extensive development of skills in this area may be required
Operations Analysis	5.0	14.6	11.0	<<	Extensive development of skills in this area may be required
Mathematics	6.2	14.2	8.6	<<	Extensive development of skills in this area may be required
Technology Design	2.6	11.7	5.8	<<	Extensive development of skills in this area may be required
Programming	2.2	10.1	3.5	<<	Extensive development of skills in this area may be required
Installation	1.7	7.5	2.2	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 95			
Focus Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111) Associated Occupation: Biomedical Engineers (17-2031)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Deductive Reasoning	10.6	17.6	14.1	<<	Extensive improvement in abilities may be required
Inductive Reasoning	10.2	16.8	14.3	<	Some improvement in abilities may be required
Written Comprehension	11.0	16.6	14.1	<	Some improvement in abilities may be required
Problem Sensitivity	11.1	16.3	15.3	0	Current ability level may be sufficient
Oral Comprehension	12.5	16.1	14.6	<	Some improvement in abilities may be required
Originality	7.6	14.5	10.6	<<	Extensive improvement in abilities may be required
Near Vision	11.1	13.9	12.7	0	Current ability level may be sufficient
Category Flexibility	9.0	13.6	11.0	<	Some improvement in abilities may be required
Information Ordering	9.9	13.6	11.9	<	Some improvement in abilities may be required
Mathematical Reasoning	6.3	13.6	8.7	<<	Extensive improvement in abilities may be required
Visualization	7.5	12.4	10.2	<	Some improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common	Similarity of Focus Occupation to Associated Occupation: 89
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Focus Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)
Associated Occupation: Biomedical Engineers (17-2031)

Work Activities	Exclusivity of Activity
Advise clients regarding engineering problems	67
Analyze engineering design problems	69
Analyze technical data, designs, or preliminary specifications	47
Collect scientific or technical data	30
Communicate technical information	4
Design electronic equipment	74
Develop plans for programs or projects	31
Direct and coordinate activities of workers or staff	3
Evaluate engineering data	60
Evaluate manufacturing or processing systems	68
Evaluate product design	78
Examine engineering documents for completeness or accuracy	62
Explain complex mathematical information	30
Inspect facilities or equipment for regulatory compliance	51
Plan testing of engineering methods	72
Prepare technical reports or related documentation	22
Read technical drawings	7
Resolve engineering or science problems	46
Test equipment as part of engineering projects or processes	67
Understand engineering data or reports	48
Use drafting or mechanical drawing techniques	50
Use government regulations	44
Use intuitive judgment for engineering analyses	72
Use mathematical or statistical methods to identify or analyze problems	30
Use scientific research methodology	21
Use technical information in manufacturing or industrial activities	67
Use technical regulations for engineering problems	61
Write product performance requirements	78

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 73

Focus Occupation: Health and Safety Engineers, Except Mining Safety Engineers and Inspectors (17-2111)
Associated Occupation: Biomedical Engineers (17-2031)

Tools and Technologies	Exclusivity
Business function specific software	1
Cameras	2
Chemical evaluation instruments and supplies	10
Computer data input devices	2

Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Diagnostic assessment and exam products for general use	21
Electrical measuring and testing equipment	7
Electrochemical measuring instruments and accessories	9
Fluid mechanics equipment	11
Indicating and recording instruments	2
Industry specific software	1
Laboratory enclosures and accessories	17
Length and thickness and distance measuring instruments	2
Mechanical instruments	14
Metals and metallurgy and structural materials testing instruments	15
Pressure measuring and control instruments	10
Pulmonary function testing and treatment products	24
Sound generating and measuring equipment	19
Spectroscopic equipment	10
Transducers	23

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.